

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Hitoshi Yamashita et al.                      Art Unit : 2857  
Serial No. : 10/529,263                                      Examiner : Edward Raymond  
Filed : March 25, 2005                                      Confirmation No.: 2148  
Title : TEST SYSTEM AND CONTROL METHOD

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REQUEST TO CORRECT NOTICE ALLOWANCE AND ISSUE FEE DUE

Applicants request that the title of the application be amended to read:

--TEST SYSTEM AND CONTROL METHOD--

Applicants prepared and filed a preliminary amendment along with the filing of the application which amended the title as indicated above. A copy of the preliminary amendment is attached.

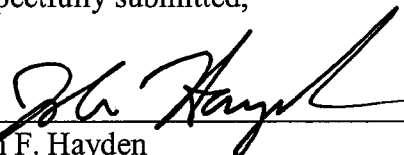
A Notice of Allowance and Issue Fee Due for the above-referenced application was mailed April 24, 2006. The notice indicates the original title and not the amended title (corrected copy attached). It is respectfully requested that the title be amended and a new Notice of Allowance and Issue Fee Due be issued to the undersigned.

No fee is believed to be due. Please apply any charges or credits to our Deposit Account No. 06-1050.

Respectfully submitted,

Date: \_\_\_\_\_

5/26/06



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## NOTICE OF ALLOWANCE AND FEE(S) DUE

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EXAMINER	
RAYMOND, EDWARD	
ART UNIT	PAPER NUMBER
2857	
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,263	03/25/2005	Susumu Fujimori	13460-003US1	2148
TITLE OF INVENTION: TEST SYSTEM AND CONTROL METHOD [THEREOF]				

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$1700	07/24/2006

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

### HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

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If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Hitoshi Yamashita et al.                      Art Unit : Unknown  
Serial No. : New U.S. National Phase                      Examiner : Unknown  
Filed : March 25, 2005  
Title : TEST SYSTEM AND CONTROL METHOD

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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**PRELIMINARY AMENDMENT**

Prior to examination, please amend the application as indicated on the following pages.

**Amendments to the Specification** are at page 2 of this paper.

**Amendments to the Claims** are reflected in the listing of claims which begins on page 3 of this paper.

**Remarks/Arguments** begin on page 10 of this paper.

Applicant : Hitoshi Yamashita et al.  
Serial No. : New U.S. National Phase  
Filed : March 25, 2005  
Page : 2 of 10

Attor 's Docket No.: 13460-  
003US1 / EL:TOT:MOH, PC/B(X)-16-2US

Amendments to the Specification

Please replace the title with the following amended title:

TEST SYSTEM AND CONTROL METHOD ~~THEREOF~~

### Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

### Listing of Claims

1. (Currently Amended) A test management server for a test system that includes ~~comprising~~ a first computer having an input means and an output; ~~means;~~ a second computer, connected to the first computer via a network including the Internet, and having an input means and an output; ~~means;~~ ~~a test management server connected to the first and second computers via the network;~~ and a problem database, accessible by the test management server, for storing a plurality of problems each of which is assigned pre-estimated item parameters including a [[the]] difficulty level and an identifiability of the problem, wherein the test system presents n problems to one testee so as to estimate the ability  $\theta$  of the testee from his/her responses to the problems, [[said]] the test management server being connected to the first and second computers and being configured to: ~~comprising:~~

in response means, ~~responsive~~ to a request transmitted from the first computer, select ~~for selecting~~ from the problem database n problems to be marked in such a manner that allows a partial score  $r_j$  to be given to the testee's response to a problem j, and transmit ~~transmitting~~ the selected problems to the first computer, wherein  $0 \leq r_j \leq 1$  with 1 being a full mark and  $1 \leq j \leq n$ ;

store answer storage means ~~for storing~~ an answer returned from the first computer in response ~~, responsive~~ to each of the problems selected from the problem database and transmitted to the first computer;

in response means, ~~responsive~~ to a request transmitted from the second computer, read the stored ~~for reading~~ answers stored in the answer storage means, and transmit ~~transmitting~~ the read answers to the second computer;

receive, ~~partial score storage means for receiving~~ from the second computer, a partial score  $r_j$  assigned to the testee's answer transmitted to the second computer, and store ~~storing~~ the partial score  $r_j$ ; and

~~estimate ability estimation means for estimating~~ the ability  $\theta$  of the testee who acquires the partial score  $r_j$  on the basis of the stored partial score  $r_j$  ~~stored in the partial score storage means~~ and the item parameters of the problem  $j$  stored in the problem database; ~~and~~

wherein, in estimating the ability, ~~prediction means~~, assuming that the partial score  $r_j$  is treated as an average value of true-false responses which the testee latently indicates to latent problems to which the testee latently indicates the correct response of ~~correct answer of~~ 1 or the wrong response of 0 and that are repeatedly performed  $s_j$  times, and, when  $P_j(\theta)$  is the probability that the testee can correctly answer the latent problem and when  $Q_j(\theta)$  is  $1 - P_j(\theta)$ , the ability  $\theta$  of the testee is estimated using the logarithmic likelihood  $l_{part}(\theta)$  represented by: ~~the following Equation:~~

[Equation 40]

$$\ell_{part}(\theta) = \sum_{j=1}^n s_j \left( r_j \ln(P_j(\theta)) + (1 - r_j) \ln(Q_j(\theta)) \right)$$

2. (Currently Amended) The test management server **[[system]]** according to claim 1, wherein  $P_j(\theta)$  is represented as follows using a 2-parameter logistic model:

[Equation 41]

$$P_j(\theta) = \frac{1}{1 + \exp(-Da_j(\theta - b_j))}$$

where  $a_j$  and  $b_j$  ~~in Equation 41~~ respectively indicate the identifiability and the difficulty level which are the proper feature of the problem stored in the problem database, and  $D$  is a constant of 1.7.

3. (Currently Amended) The test management server **[[system]]** according to claim 2, characterized in that when the observed partial score  $r_j$  for the problem  $j$  is configured by an average of a plurality of manifest true-false problems, the correct answer rate of these true-false problems is represented by Equation 41, and the ability  $\theta$  of a testee can be estimated using Equation 40.

4. (Currently Amended) The test management server **[[system]]** according to ~~any of~~

~~claims 1 to 3~~ claim 1, characterized in that the ability distribution of a group on which a test is conducted is assumed, the product of the binomial distribution, which is a true-false sum of  $s_j$ , and the assumed ability distribution is integrated by the dimension of the ability to obtain the theoretical distribution function of a partial score, and the  $s_j$ , which is the iterations of latent problems, can be estimated such that the obtained theoretical distribution function can best match ~~matches~~ the empirical distribution function of the partial score of the actual data.

5. (Currently Amended) The test management server **[[system]]** according to ~~any of~~ ~~claims 1 to 4~~ claim 1, characterized in that the output ~~means~~ and the input ~~means~~ of the first and second computers respectively comprise a voice output ~~means~~ and a voice input, ~~means~~, and an answer transmitted to, and stored by, the test management server ~~and stored~~ includes voice data.

6. (Currently Amended) A method for controlling a test system having a first computer having an input ~~means~~ and an output, ~~means~~; a second computer, connected to the first computer over a network including the Internet, and having an input ~~means~~ and an output, ~~means~~; a test management server connected to the first and second computers over the network, and a problem database accessible by the test management server and storing a plurality of problems for which an item parameter including a difficulty level and an identifiability is estimated in advance, with the test system presenting  $n$  problems to one testee, and the ability  $\theta$  of the testee being evaluated from the response of the testee to the presented  $n$  problems, the method comprising: ~~characterized in that:~~

~~—said test management server comprises:~~

(1) ~~a step of~~ selecting  $n$  problems to be marked in an aspect allowing partial score  $r_j$  where  $0 \leq r_j \leq 1$  with perfect 1 for the problem  $j$  where  $1 \leq j \leq n$  from the problem database in response to a request transmitted from the first computer, and transmitting the selected problems to the first computer;

(2) ~~a step of~~ storing an answer returned from the first computer in response to the problem selected from the problem database and transmitted to the first computer;

(3) ~~a step of~~ reading a stored **[[an]]** answer ~~stored in said step (2)~~ in response to a **[[the]]** request transmitted from the second computer, and transmitting the read answer to the

second computer;

(4) ~~a step of receiving and storing~~ a partial score  $r_j$  assigned to the answer transmitted to the second computer from the second computer; ~~and storing it;~~ and

(5) ~~a step of estimating~~ the ability  $\theta$  of a testee who acquires the partial score  $r_j$  using the stored partial score  $r_j$  ~~stored in said step (4)~~ and the item parameter of the problem  $j$  stored in the problem database, and

~~wherein in said step (5),~~  $P_j(\theta)$  refers to the probability that the testee can correctly answer the latent problem assuming that the partial score  $r_j$  is proper to the problem  $j$  and is an average value of true-false responses response which the testee latently indicates when the latent problems to which the testee latently indicates a correct ~~[[the]]~~ response ~~of the correct answer~~ of 1 or an incorrect ~~the wrong~~ response of 0 are repeatedly performed  $s_j$  times, and, when  $Q_j(\theta)$  is  $1 - P_j(\theta)$ , the ability  $\theta$  of the testee is estimated using the logarithmic likelihood  $l_{part}(\theta)$  represented by: ~~the following Equation.~~

[Equation 42]

$$\ell_{part}(\theta) = \sum_{j=1}^n s_j \left( r_j \ln(P_j(\theta)) + (1 - r_j) \ln(Q_j(\theta)) \right)$$

7. (Currently Amended) The method according to claim 6, characterized in that  $P_j(\theta)$  is represented as follows using a 2-parameter logistic model;

[Equation 43]

$$P_j(\theta) = \frac{1}{1 + \exp(-Da_j(\theta - b_j))}$$

where  $a_j$  and  $b_j$  ~~in Equation 43~~ respectively indicate the identifiability and the difficulty level which are the proper feature of the problem stored in the problem database, and  $D$  is a constant of 1.7.

8. (Original) The method according to claim 7, characterized in that when the observed partial score  $r_j$  for the problem  $j$  is configured by an average of a plurality of manifest true-false problems, the correct answer rate of these true-false problems is represented by Equation 43, and the ability  $\theta$  of a testee can be estimated using Equation 42.



9. (Currently Amended) The method according to ~~any of claims 6 to 8~~ claim 6, characterized in that ~~[(6)]~~ the ability distribution of a group on which a test is conducted is assumed, the product of the binomial distribution, which is a true-false sum of  $s_j$ , and the assumed ability distribution is integrated by the dimension of the ability to obtain the theoretical distribution function of a partial score, and the  $s_j$  which is the iterations of latent problems can be estimated such that the obtained theoretical distribution function can best match ~~matches~~ the empirical distribution function of the partial score of the actual data.

10. (New) The test management server according to claim 2, characterized in that the ability distribution of a group on which a test is conducted is assumed, the product of the binomial distribution, which is a true-false sum of  $s_j$ , and the assumed ability distribution is integrated by the dimension of the ability to obtain the theoretical distribution function of a partial score, and the  $s_j$ , which is the iterations of latent problems, can be estimated such that the obtained theoretical distribution function can best match the empirical distribution function of the partial score of the actual data.

11. (New) The test management server according to claim 2, characterized in that the output and the input of the first and second computers respectively comprise a voice output and a voice input, and an answer transmitted to, and stored by, the test management server includes voice data.

12. (New) The test management server according to claim 3, characterized in that the ability distribution of a group on which a test is conducted is assumed, the product of the binomial distribution, which is a true-false sum of  $s_j$ , and the assumed ability distribution is integrated by the dimension of the ability to obtain the theoretical distribution function of a partial score, and the  $s_j$ , which is the iterations of latent problems, can be estimated such that the obtained theoretical distribution function can best match the empirical distribution function of the partial score of the actual data.

13. (New) The test management server according to claim 3, characterized in that the

output and the input of the first and second computers respectively comprise a voice output and a voice input, and an answer transmitted to, and stored by, the test management server includes voice data.

14. (New) The test management server according to claim 4, characterized in that the output and the input of the first and second computers respectively comprise a voice output and a voice input, and an answer transmitted to, and stored by, the test management server includes voice data.

15. (New) The method according to claim 6, characterized in that the output and the input of the first and second computers respectively comprise a voice output and a voice input, and a stored answer includes voice data.

16. (New) A computer-readable storage medium on which is stored a computer program that instructs a computer to execute the method according to claim 6.

17. (New) A computer program that instructs a computer to execute the method according to claim 6.

18. (New) The method according to claim 7, characterized in that the ability distribution of a group on which a test is conducted is assumed, the product of the binomial distribution, which is a true-false sum of  $s_j$ , and the assumed ability distribution is integrated by the dimension of the ability to obtain the theoretical distribution function of a partial score, and the  $s_j$  which is the iterations of latent problems can be estimated such that the obtained theoretical distribution function can best match the empirical distribution function of the partial score of the actual data.

19. (New) The method according to claim 7, characterized in that the output and the input of the first and second computers respectively comprise a voice output and a voice input, and a stored answer includes voice data.

20. (New) The method according to claim 8, characterized in that the ability distribution of a group on which a test is conducted is assumed, the product of the binomial distribution, which is a true-false sum of  $s_j$ , and the assumed ability distribution is integrated by the dimension of the ability to obtain the theoretical distribution function of a partial score, and the  $s_j$  which is the iterations of latent problems can be estimated such that the obtained theoretical distribution function can best match the empirical distribution function of the partial score of the actual data.

21. (New) The method according to claim 8, characterized in that the output and the input of the first and second computers respectively comprise a voice output and a voice input, and a stored answer includes voice data.

22. (New) The method according to claim 9, characterized in that the output and the input of the first and second computers respectively comprise a voice output and a voice input, and a stored answer includes voice data.

Applicant : Hitoshi Yamashita et al.  
Serial No. : New U.S. National Phase  
Filed : March 25, 2005  
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Atto: 's Docket No.: 13460-  
003US1 / EL:TOT:MOH, PC/B(X)-16-2US

REMARKS

Claims 1-22 are pending in the application, with claims 1 and 6 being independent. Claims 1-7 and 9 have been amended and new claims 10-22 have been added to remove the multiple dependency and to place the claims in better form for examination. The title also has been amended. No new matter has been introduced.

Applicants ask that the application be examined in view of the amendments made herein.

Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: March 25, 2005

  
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